

ATHENS

OPERATOR'S MANUAL

SET-UP INSTRUCTIONS

and

Repair Parts List

for

"156"

Chisel Plows



ATHENS PLOW COMPANY, INC.

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Safety Rules . . . Read your decals

The safety of the operator is one of the prime considerations in the minds of Rhino Products engineers when designing equipment. Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason, most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safe-guarded against without interfering with reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident!



CAUTION

Failure to follow safe operating practices can cause tractors to rear up which can cause equipment damage and bodily injury.



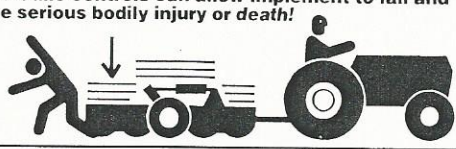
1. Make certain that lock pins are installed into upper and lower link pins on hitch.
2. Add front end weights as required to maintain enough weight on front wheels for safe steering.
3. Slow down in curves and in rough places to maintain safe steering weight on front wheels.
4. Never start or accelerate suddenly to prevent loss of safe steering control.
5. Do not lift heavy implements going up steep slopes.
6. Do not lift implement heavier than recommended by tractor manufacturer.

999001 (ALL LIFT EQUIPMENT)



WARNING

Failure of hydraulic components or accidental operation of hydraulic controls can allow implement to fall and cause serious bodily injury or death!



1. Keep everyone clear when implement is being raised or lowered. Raise or lower slowly and cautiously.
2. Install Mechanical Transport devices when working on implement in the raised position or transporting.

999201 (ALL WHEELED UNITS)

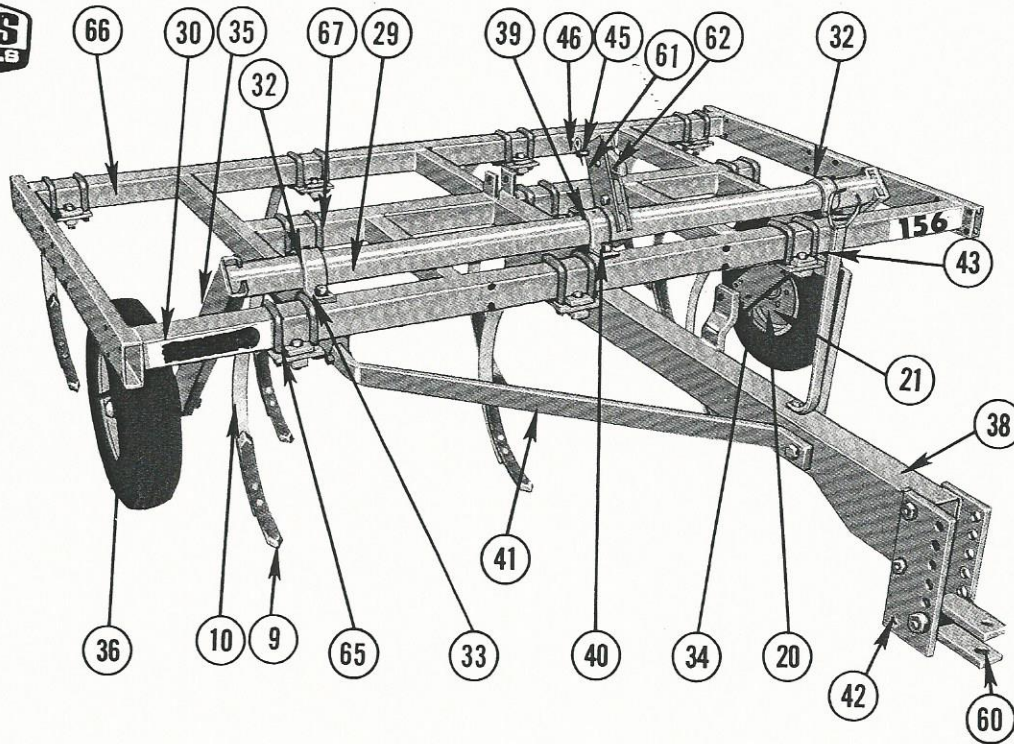


Figure 1

SETTING-UP INSTRUCTIONS

1. TO INSTALL WHEEL CARRIAGE, WHEELS AND TONGUE (Three-Bar Units only):

(Refer to Figure 1, Page 3 and Figure 4, Page 4)

Place Wheel Carriage (29) on top of Frame (30 or 31) as shown and bolt in place with two Wheel Carriage Attaching Cuffs (32) and four $\frac{3}{4}$ " x $5\frac{1}{2}$ " Bolts (33) with Nuts, Lockwashers and Flat Washers at the outer ends of Wheel Carriage. **CAUTION: Mount Wheel Carriage Attaching Cuffs with side-to-side slots to the rear.** Tighten securely.

Attach Wheel Axles (34) to outside of Wheel Standards (35) with eight $\frac{1}{2}$ " x $3\frac{3}{4}$ " Bolts with Nuts and Lockwashers. Tighten securely. Mount tires (not furnished. 7:75 x 14" tires recommended. 28 $\frac{1}{2}$ " maximum allowable tire diameter) on Wheels (36) and fasten Wheels to Hub (20) with ten $\frac{1}{2}$ " x $1\frac{3}{4}$ " Bolts with fine threads and Lug Nuts (21).

Place Tongue (38) underneath Frame (30 or 31) and fasten together at rear of Tongue with two $\frac{3}{4}$ " x 2" Bolts with Nuts and Lockwashers. Assemble the Center Wheel Carriage Cuff (39) onto Wheel Carriage and bolt Frame and Tongue together with two $\frac{3}{4}$ " x $11\frac{1}{2}$ " Bolts (40) with Nuts, Flat Washers and Lockwashers. Install grease fittings.

Attach Tongue Braces (41) to Tongue with $\frac{7}{8}$ " x 7" Bolt with Nut and Lockwasher and to Frame with two $\frac{7}{8}$ " x $2\frac{1}{2}$ " Bolt with Nut and Lockwasher. Attach Clevis Plates (42) to Tongue with two $\frac{7}{8}$ " x $6\frac{1}{2}$ " Bolt with Nut and Lockwasher as shown in Figure 1 for 32" Tines and as shown in Figure 4 for 22" Tines.

Fasten Hose Stand (43) to Tongue with $\frac{1}{2}$ " x 6" Bolt with Nut and Lockwasher. Attach Transport Strap to Tongue with $\frac{3}{4}$ " x 2" Bolt with Lock Nut leaving Transport Strap free to rotate. Tighten all other Bolts securely.

Raise entire machine with hoist or hydraulic cylinder (not furnished. 3 $\frac{1}{2}$ " x 8" cylinder recommended with 84" of hose minimum. Note: Cylinder length is 20" contracted and 23" expanded) and attach Transport Strap to Wheel Carriage Plates (45) with $\frac{3}{4}$ " x $2\frac{3}{4}$ " Rivet (46) and Quick Hitch Pin.

2. TO ATTACH THREE-POINT HITCH:

A. Three-Bar Chisel Plows

(Refer to Figures 2 and 3, Page 4 and Figure 11, Page 9)

Install two $\frac{7}{8}$ " x $6\frac{1}{2}$ " Bolts (47) into close-spaced holes in Right Lower Hitch (48) and insert into holes drilled in right side of Frame. Place Hitch Bolt Back-Up (49) onto Bolts and install Nuts and Lockwashers. Install two $\frac{7}{8}$ " x 7" Bolts in wide-spaced holes in Hitch and attach to Frame with Clamp Plate (50) Nuts and Lockwashers. Repeat procedure to mount Left Lower Hitch (51).

Attach Right Top Hitch (4) to Lower hole in Right Lower Hitch with $\frac{3}{4}$ " x $2\frac{3}{4}$ " Bolt with Nut and Lockwashers, for Category No. 2 tractors and in upper hole for Category No. 3 tractors. Repeat procedure for Left Top Hitch (3). Fasten Top Hitches together with 1" x $4\frac{1}{2}$ " Bolt (54) with Nut and Hitch Spacer (55). Fasten Top Hitch Brace (56) to Frame (30 or 31) and to Top Hitches (3 and 4) with two 1" x $6\frac{1}{2}$ " Bolts (57) with Hitch Spacer (58), Nuts and Lockwashers. Tighten all Bolts securely.

B. Two-Bar Chisel Plows

(Refer to Figure 5, Page 5. For 5' Chisel refer to Addendum B, Page 15)

Attach Top Hitch Brace (1) to Frame (2) with $\frac{3}{4}$ " x $2\frac{1}{4}$ " Bolts loosely. Attach Left Top Hitch (3) and Right Top Hitch (4) to Frame with $\frac{3}{4}$ " x $2\frac{1}{4}$ " Bolts loosely. Bolt Left and Right Top Hitches together with 1" x $4\frac{1}{2}$ " Bolt with Hitch Spacer (5) in place as shown. Connect Left and Right Top Hitch (3 and 4) to Top Hitch Brace (1) with 1" x 6" Bolt and Hitch Spacer (24) as shown. Tighten all bolts securely.

3. TO ATTACH TO TRACTOR:

A. Wheel-Type Units

(Refer to Figure 1, Page 3, Figure 4, Page 4 and Figure 9, Page 8)

Attach Clevis (60) to tractor drawbar securely. Install

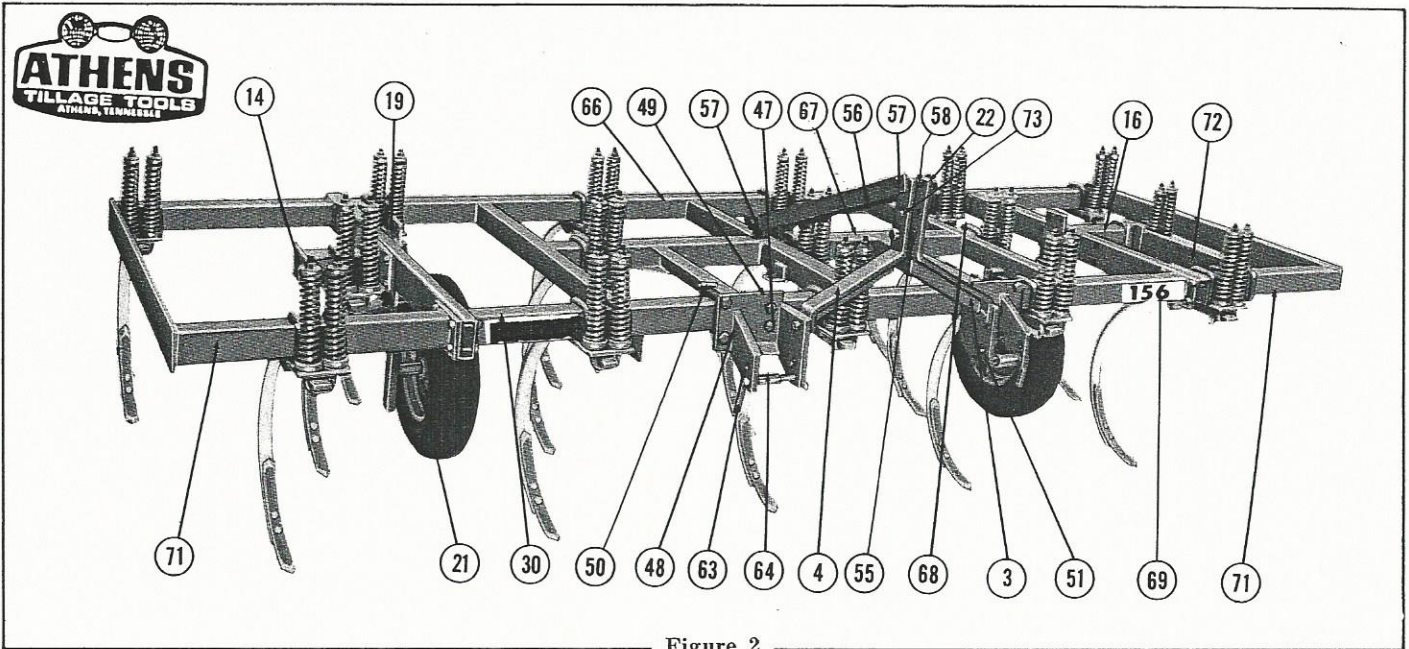


Figure 2

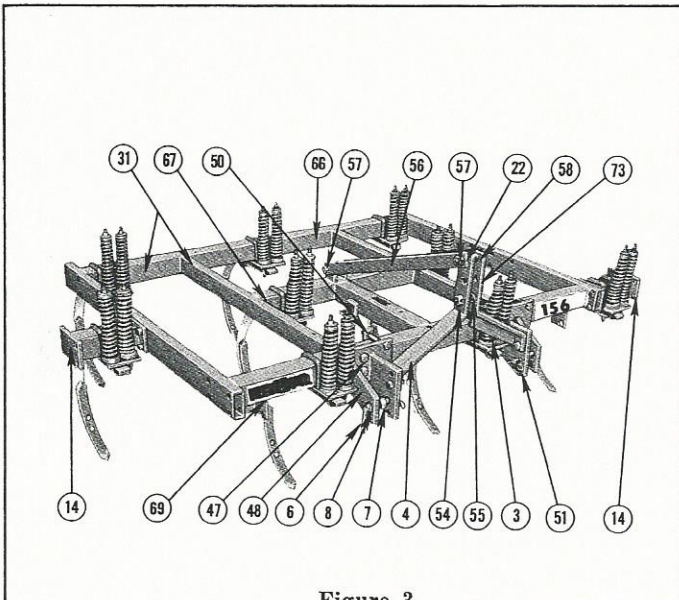


Figure 3

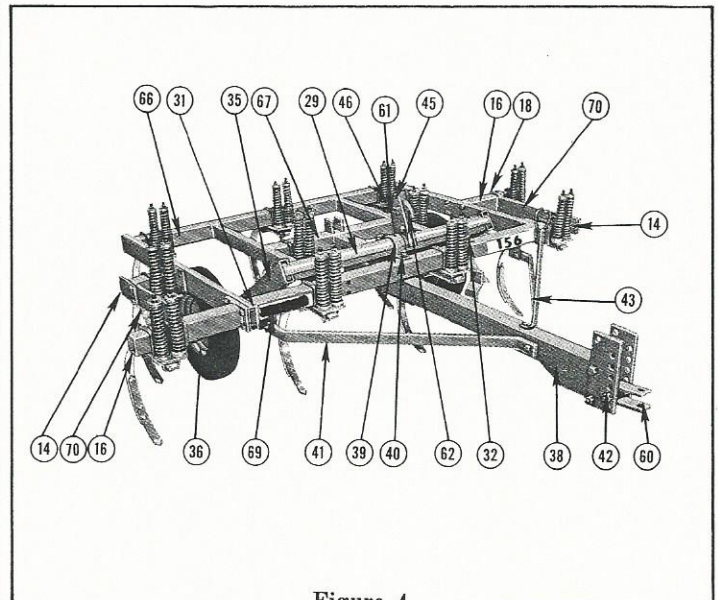


Figure 4

3½" x 8" hydraulic cylinder with at least 84" of hose with hose through Hose Stand (43). Remove ½" x 2¼" Rivet (61) and rotate Ram Pivot Arm (62) for ease of installing and removing cylinder. Extend cylinder and remove Rivet (46). Lower Frame to approximately 30" from ground. Block in place securely. Replace Rivet (61).

B. Seven-Foot and Eleven-Foot Lift-Type Units
(Refer to Figure 3, Page 4, Figure 5, Page 5 and Figure 11A, Page 9)

Attach unit to tractor with Hitch Pins (6) and Hitch Spacers (7). Note that Hitch Spacers (7) go outside of tractor drawbars. (When using Category No. 2 Quick Coupler, Hitch Pins (6) and Quick Coupler Adapters (extra equipment) are mounted in the top holes (8) in Lower Hitch Members.)

C. Ten-Foot Lift-Type Units
(Refer to Figure 2, Page 4 and Figure 11B, Page 9)

Attach unit to tractor with Hitch Pins (63) and Hitch Spacers (64). Note that Hitch Spacers go outside of tractor drawbars for Category No. 2 and inside of tractor drawbars for Category No. 3. When tractor is equipped with Quick Coupler Hitch, Quick Coupler Bushings are installed on Hitch Pin in

upper holes in Lower Hitches for Category No. 2 and in lower holes for Category No. 3.

4. TO ATTACH TINES TO TINE ATTACHING PLATE:

For serial numbers below D76100 this information is correct. For serial numbers D76100 and above see Addendum A.

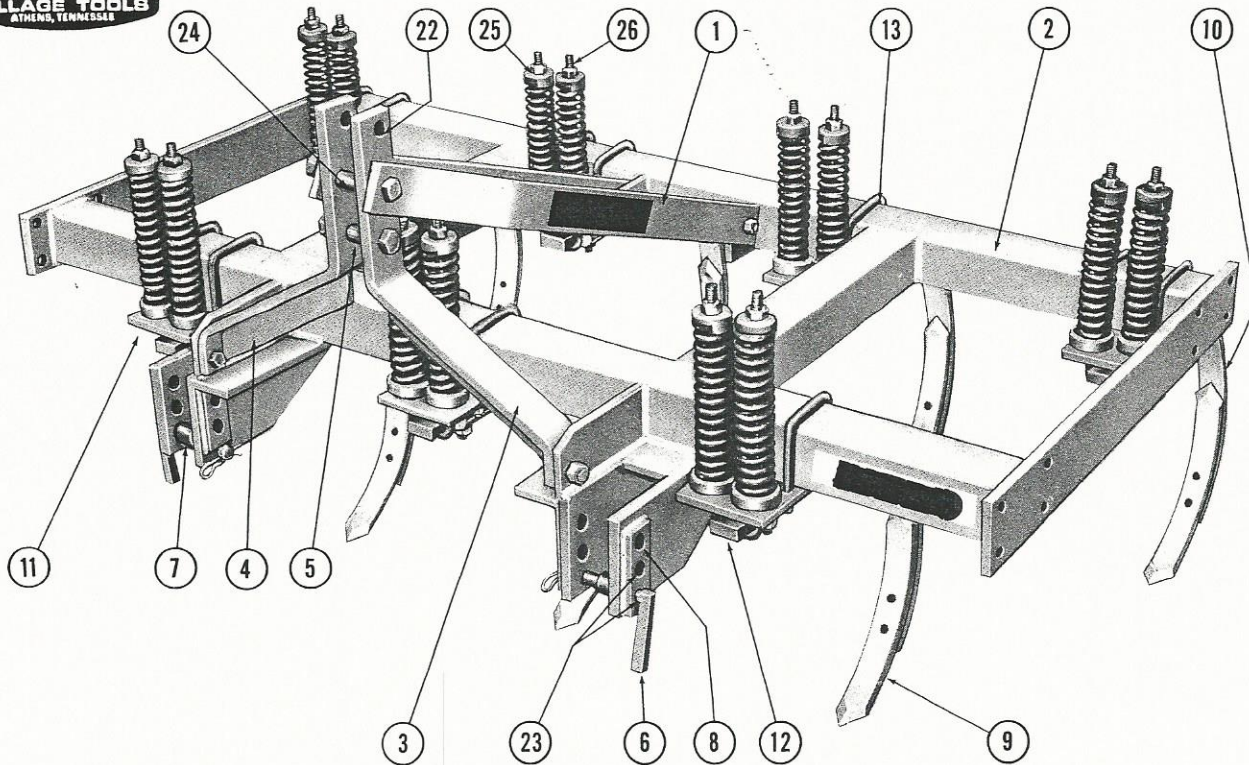
(Refer to Figure 1, Page 3, Figure 5, Page 5, Figure 10, Page 8 and Figure 14, Page 11)

Attach Chisel Points (9) to Tines (10) securely. Insert Tine through slot in Tine Attaching Assembly (11) and bolt securely to Tine Pivot (12) for Cushion Spring Assemblies. For Rigid Tine Attaching Assembly, insert Tine (10) through "U" hook on Rigid Tine Attaching Assembly (65) and bolt securely to front of Rigid Tine Attaching Assembly.

5. TO ATTACH TINE ASSEMBLIES TO FRAMES:

A. On Three-Bar Chisel Plows:
(Refer to Figure 1, Page 3 and Figures 2, 3 and 4, Page 4)

All Tines are mounted on three-foot centers. Starting at outside rear corners, mount Tines three feet apart on Rear Bar (66). Mount Tines on Center Bar (67) and Stub Bar (68) one



ALSO SEE ADDENDUM B, PAGE 15, FOR 5' UNITS.

Figure 5

foot to right of rear Tines. Mount Tines on Front Bar (69) one foot to right of Tines on Center Bar.

B. On Two-Bar Chisel Plows:
(Refer to Figure 5, Page 5)

Starting in the center of Front Tube for 7-foot and 11-foot Frames, attach Tine bundles 24" on center for 12" spacing. The Tines in rear are mounted 12" to either side of front Tines.

C. To Make a Heavy-Duty Root or Rock Rake:

Mount all Tines on Rear Bar (66) starting in the center and working toward each side. Note: More complete Tine Bundles may be purchased as Extra Equipment to fill all the open space as desired. For instance, a 10-foot Frame can use up to 18 close-spaced Tines on Rear Bar.

6. TO ATTACH EXTENSIONS: (Extra Equipment)

A. On Three-Bar Chisel Plows:

(Refer to Figures 2, 3 and 4, Page 4 and Figure 12, Page 10)

1. Mount Single Extensions (14) to Frames (30 and 31) at left front and right center with eight $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts and Lock Nuts. Tighten securely.
2. Mount Double Extensions (16) to Frames at left center and right front positions with eight $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts and Lock Nuts. Attach Double Extension Braces (70) to Single Extensions with four $\frac{3}{4}$ " x $1\frac{3}{4}$ " Bolts with Lock Nuts and to Double Extensions with U-Bolts (18) and Lock Nuts. **CAUTION: Single Extensions must be used with Double Extensions. Tighten securely.**
3. Mount Triple Extensions (71) to front and rear of Frames with sixteen $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts with Lock Nuts. Mount one Single Extension (14) at right center and one Double Extension (16) at left center with eight $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts with

Lock Nuts. Attach one Triple Extension Brace (72) to Double Extension and to Triple Extension with two U-Bolts and four Lock Nuts. Tighten securely.

B. On Two-Bar Chisel Plows:

(Refer to Figure 6, Page 6 and Addendum B, Page 15)

1. Fasten Single Extension (14) to front of Frame (2) with $\frac{3}{4}$ " x 2" Bolts (15). Tighten Lock Nuts securely.
2. Fasten Double Extension (16) to rear of Frame (2) with $\frac{3}{4}$ " x 2" Bolts (15) loosely. Fasten Extension Brace (17) to Double Extension (16) with U-Bolts (18) and to Single Extension (14) with $\frac{3}{4}$ " x $1\frac{3}{4}$ " Bolts. Tighten bolts and U-Bolts securely. **CAUTION: Single Extensions must be used with Double Extensions.**

7. TO ATTACH GAUGE WHEELS: (Extra Equipment)

A. On Three-Bar Chisel Plows:

(Refer to Figure 2, Page 4 and Figure 7, Page 6)

Fasten Gauge Wheel Attaching Assembly (19) to inside of Frame (30 and 31) with eight $\frac{3}{4}$ " x 4" Bolts with Lock Nuts. Note: There are three pairs of holes in Side Frame Members. Position Gauge Wheels to allow the maximum amount of trash clearance between wheel and nearest tine.

B. On Two-Bar Chisel Plows:

(Refer to Figures 6 and 7, Page 6)

Fasten Gauge Wheel Attaching Assembly (19) to front of Frame for best performance. It can be mounted to rear of frame, if desired. NOTE: If Extensions (14 and/or 16) are used, Gauge Wheel Attaching Assembly (19) is fastened to plate on end of Single Extension (14).

- C. Fasten Wheel and tire to Hub (20) with Lug Bolts (21) and tighten securely. (Tire not furnished. 7:00 x 14 to 8:75 x 14 4-Ply Tires recommended.)

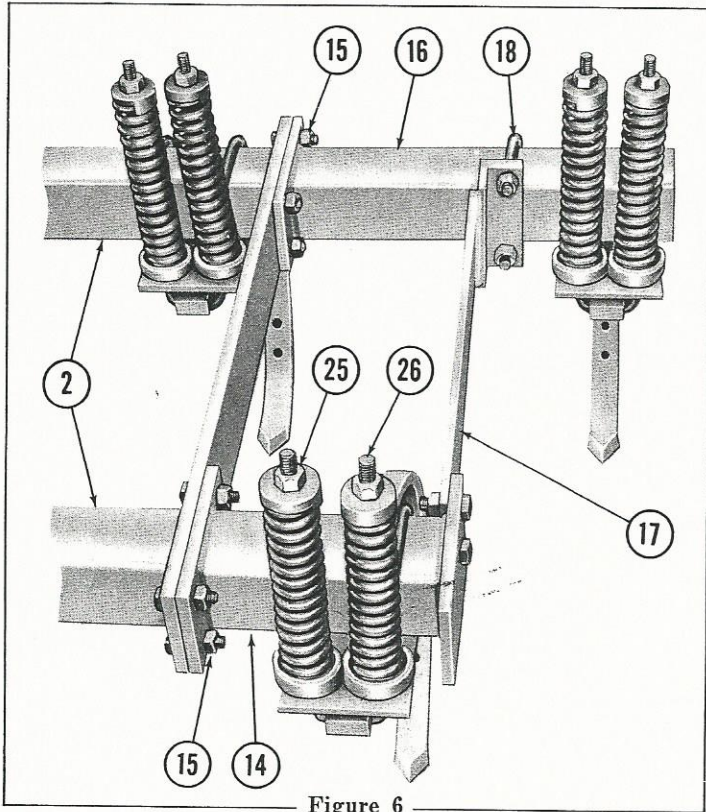


Figure 6

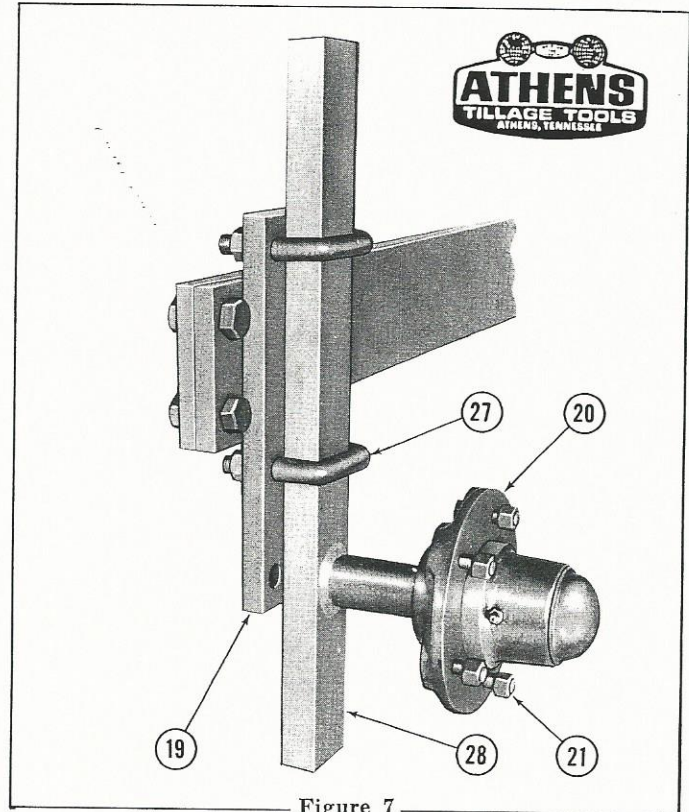


Figure 7

OPERATING INSTRUCTIONS

1. TO ATTACH TO TRACTOR:

A. For Three-Bar Chisel Plows:

(Refer to Figures 2 and 3, Page 4 and Figure 11, Page 9 and to Item 2A in Setting-up Directions)

For Category No. 2 tractors, attach tractor drawbars to upper holes in Lower Hitch Members (48 and 51) and top link to center hole (73) in Top Hitch Members. For increased lifting height, attach tractor drawbars to lower holes in Lower Hitch Members and/or top link to upper hole (22) in Top Hitch Members.

If tractor is equipped with Category No. 2 Quick Coupler, install Category No. 2 Quick Coupler Bushing (Extra Equipment—see Parts List on Page 8) in upper holes in Lower Hitch Members and Coupler will attach to these parts and to Hitch Spacer Bushing (55).

For Category No. 3 tractors (10' Frame only), attach tractor drawbars to lower holes in Lower Hitch Members (48 and 51) and top link to center hole (73) in Top Hitch Members. For increased lifting height, attach top link to upper hole (22) in Top Hitch Members.

If tractor is equipped with Category No. 3 Quick Coupler, install Quick Coupler Bushing (Extra Equipment—see Parts List on Page 8) in lower holes in Lower Hitch Members and Coupler will attach to these parts and to Hitch Spacer Bushing (55).

B. For Two-Bar Chisel Plows:

(Refer to Figure 5, Page 5, Figure 13, Page 11 and Item 2B in Setting-Up Directions)

For recommended lifting characteristics, attach tractor drawbars at upper holes (8) and attach top link at top hole (22) in Top Hitch Members (3 and 4).

CAUTION: Hitch Spacers (7) go outside of tractor drawbars as indicated.

For increased ground clearance, attach drawbars at lower holes (23). For level lifting, move Hitch Spacer (24), bolt and Top Hitch Brace (1) to upper hole (22) and attach top link at holes vacated at (24).

For Quick-Attaching Coupler, install Quick Coupler Bushings (Extra Equipment—not shown) at hole (8) with Hitch Pins (6). Any SAE standard Quick-Attaching Coupler will satisfactorily attach at (5) and (8).

2. TO ADJUST FOR LEVEL:

With Chisel Plow in the ground, adjust frame level front-to-rear and side-to-side by adjusting tractor hitch.

3. TO ADJUST TINE ANGLE:

(Refer to Figure 5, Page 5 and Figure 6, Page 6)

Tighten Lock Nuts (25) on U-Bolts (26) until approximately $\frac{1}{2}$ " of thread extends through nut. Tighten more, only if needed, to keep tines from pulling down causing excessive suck. Do not tighten past $\frac{1}{4}$ " of exposed threads on U-Bolts.

CAUTION: Tighten Spring Lock Nuts as little as possible to get your job done. Excessively tightening Springs will tend to defeat the shock absorbing springs and will cause damage to associated parts in rocky or stumpy land.

4. TO ADJUST GAUGE WHEELS:

(Refer to Figure 7, Page 6)

Loosen Lock Nuts on U-Bolts (27). Raise or lower Gauge Wheel Standard (28) as desired. Tighten U-Bolts securely.

CAUTION: Adjust both Gauge Wheels for same depth of plowing to prevent uneven draft.

MAINTENANCE

After first day's use and at beginning and end of each season:

1. Tighten all bolts.
2. Adjust Wheel Bearings, if needed.
3. Lubricate Spring U-Bolt threads.
4. Lubricate Wheel Bearings with No. 2 Bearing Grease until grease comes out through seals.
5. Repair or replace broken or worn parts.

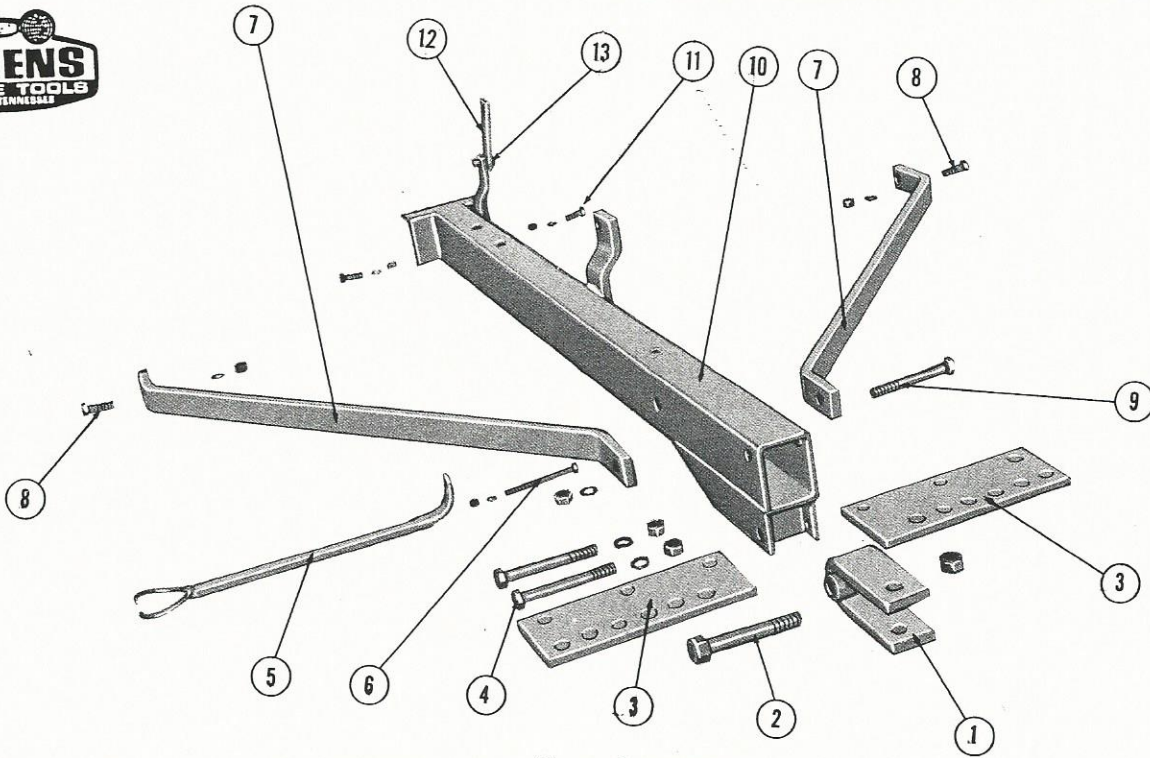


Figure 8

TONGUE PARTS

Item No.	Part No.	Quantity	Description
1	18132	1	Clevis
2	80213	1	1" x 6½" Bolt
	80880	1	1" Lock Nut
3	18372	2	Clevis Plate
4	80201	2	¾" x 6½" Bolt
	80645	2	¾" Nut
	81030	2	¾" Lockwasher
5	16834	1	Hose Stand
6	80124	1	½" x 6" Bolt
	80585	1	½" Nut
7	18373	2	Tongue Brace
8	80186	2	¾" x 2½" Bolt
	81030	2	¾" Lockwasher
	80645	3	¾" Nut
9	80203	1	¾" x 7" Bolt
	81030	1	¾" Lockwasher
10	18378	1	Tongue Assembly
11	80155	2	¾" x 2" Bolt
	80620	2	¾" Nut
	81020	2	¾" Lockwasher
12	18367	1	Transport Strap
13	80155	1	¾" x 2" Bolt
	80870	1	¾" Lock Nut

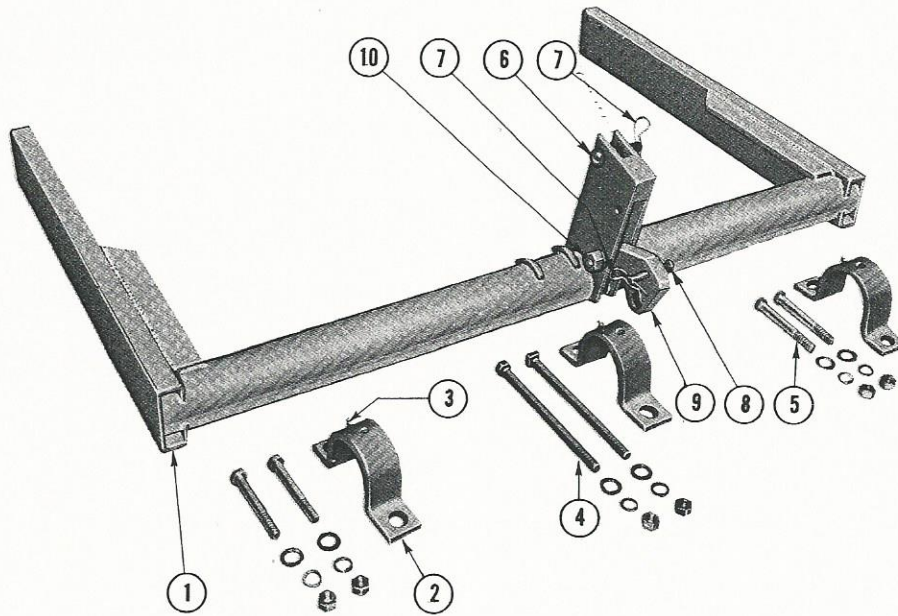


Figure 9

WHEEL CARRIAGE AND ATTACHING PARTS

Item No.	Part No.	Quantity		Description
		7-Foot	10-Foot	
1	18387	1		Wheel Carriage Assembly
	18388		1	Wheel Carriage Assembly
2	18368	3	3	Wheel Carriage Attaching Cuff
3	11610	3	3	1/8" NPT Grease Fitting
4	18696	2	2	3/4" x 11 1/2" Bolt Assembly
	80620	2	2	3/4" Hex Nut
	81200	2	2	3/4" SAE Flat Washer
	81020	2	2	3/4" Lockwasher
5	80180	4	4	3/4" x 5 1/2" Bolt
	80620	4	4	3/4" Hex Nut
	81200	4	4	3/4" SAE Flat Washer
	81020	4	4	3/4" Lockwasher
6	16462	1	1	Transport Rivet
7	12057	2	2	3/16" Quick-Hitch Pin
8	15895	1	1	Ram Arm Pin
9	18383	1	1	Ram Pivot Arm
10	80187	1	1	7/8" x 3" Bolt
	81030	1	1	7/8" Lockwasher
	80645	1	1	7/8" Hex Nut

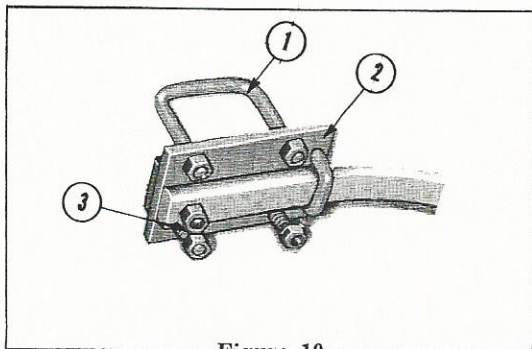


Figure 10

RIGID TINE ATTACHING PARTS

(For Serial Numbers below D76100)

Item No.	Part No.	Quantity	Description
		(Per Tine)	
1	17499	2	U-Bolt
	80870	4	3/4" Lock Nut
2	19171	1	Rigid Tine Attaching Assembly
3	80165	1	3/4" x 3" Bolt
	80870	1	3/4" Lock Nut

Note: For units shipped after March 1976 (Serial Number D76100 and up), see Figure 17, Page 14.

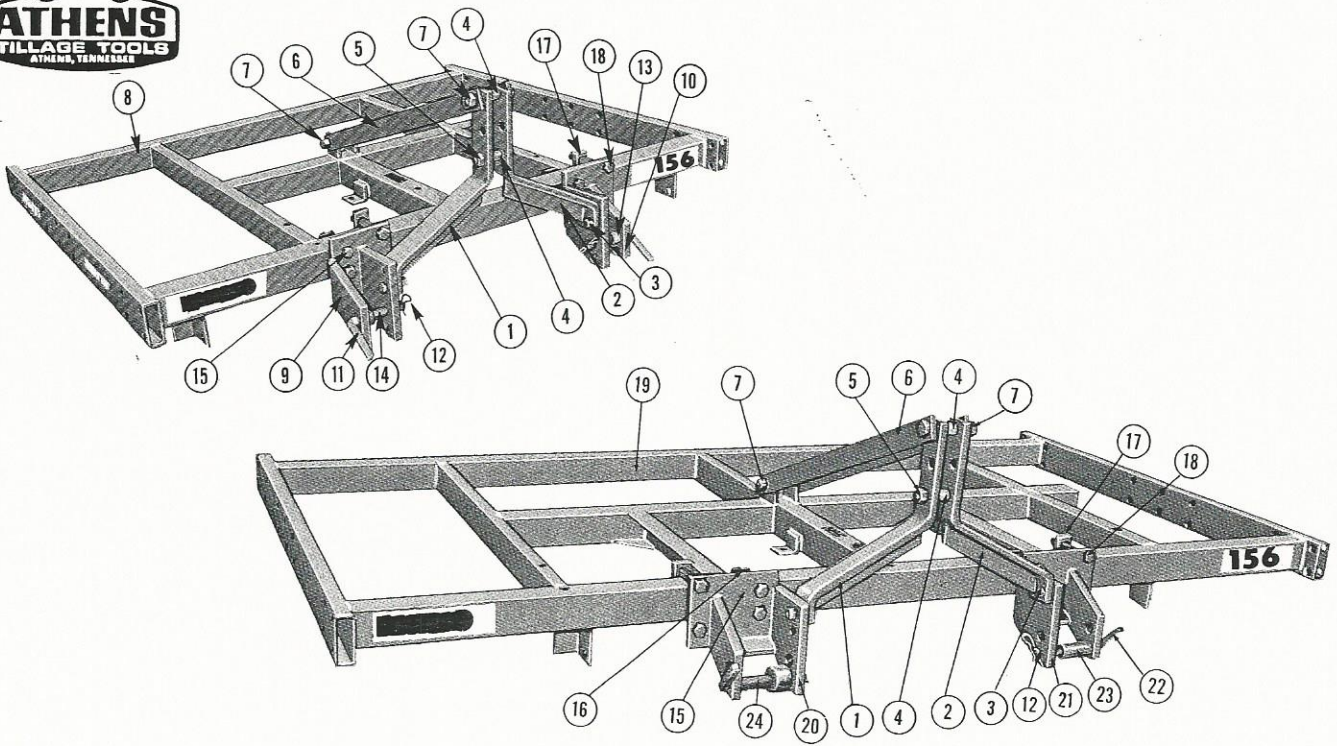


Figure 11

FRAME AND HITCH PARTS
(FOR THREE-BAR UNITS)

Item No.	Part No.	Quantity		Description
		7-Foot	10-Foot	
1	17495	1	1	Right Top Hitch Assembly
2	17494	1	1	Left Top Hitch Assembly
3	80162	2	2	3/4" x 2 3/4" Bolt
	80620	2	2	3/4" Nut
	81020	2	2	3/4" Lockwasher
4	17491	2	2	Hitch Spacer
5	80210	1	1	1" x 4 1/2" Bolt
	80685	1	1	1" Nut
6	18360	1	1	Top Hitch Brace
7	80213	2	2	1" x 6 1/2" Bolt
	80685	2	2	1" Nut
	81040	2	2	1" Lockwasher
8	18346	1		Frame Assembly, 7-Foot
9	18362	1		Right Lower Hitch, 7-Foot
10	18363	1		Left Lower Hitch, 7-Foot
11	17492	2		Hitch Pin
12	12126	2	2	1/4" Quick-Hitch Pin
13	17490	2		Lower Hitch Spacer
14	17511	2		Quick-Coupler Bushing, Category No. 2 (Extra Equipment)
15	80201	4	4	7/8" x 6 1/2" Bolt
	80645	4	4	7/8" Nut
	81030	4	4	7/8" Lockwasher
16	18350	2	2	Hitch Bolt Back-Up
17	18356	2	2	Hitch Clamp Plate
18	80203	4	4	3/8" x 7" Bolt
	80645	4	4	7/8" Nut
	81030	4	4	7/8" Lockwasher
19	18347		1	Frame Assembly, 10-Foot
20	18364		1	Right Lower Hitch, 10-Foot
21	18365		1	Left Lower Hitch, 10-Foot
22	18361		2	Hitch Pin, 10-Foot
23	17453		2	Lower Hitch Spacer
24	17465		2	Category 2 and 3 Quick-Coupler Bushing (Extra Equipment)

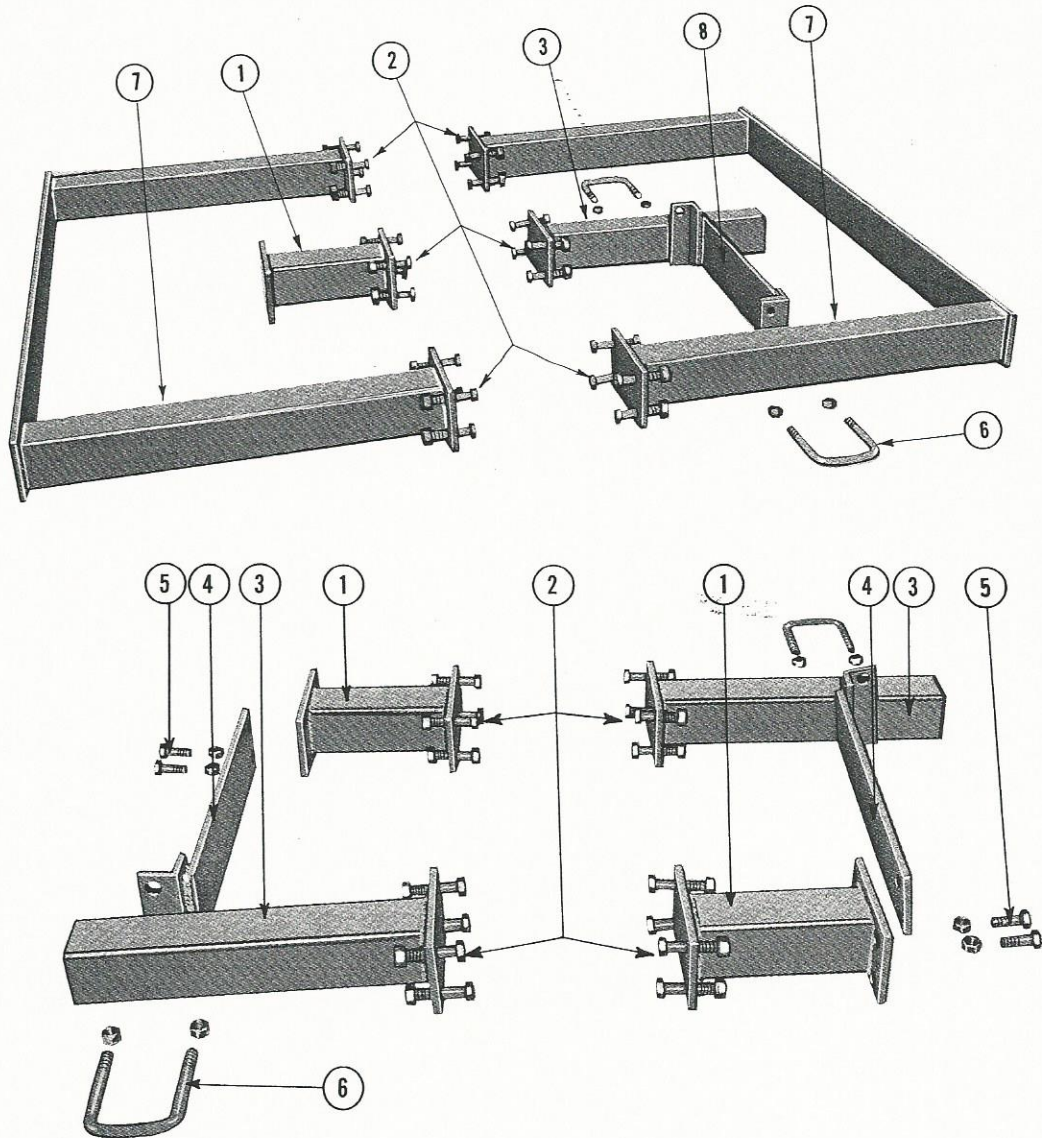
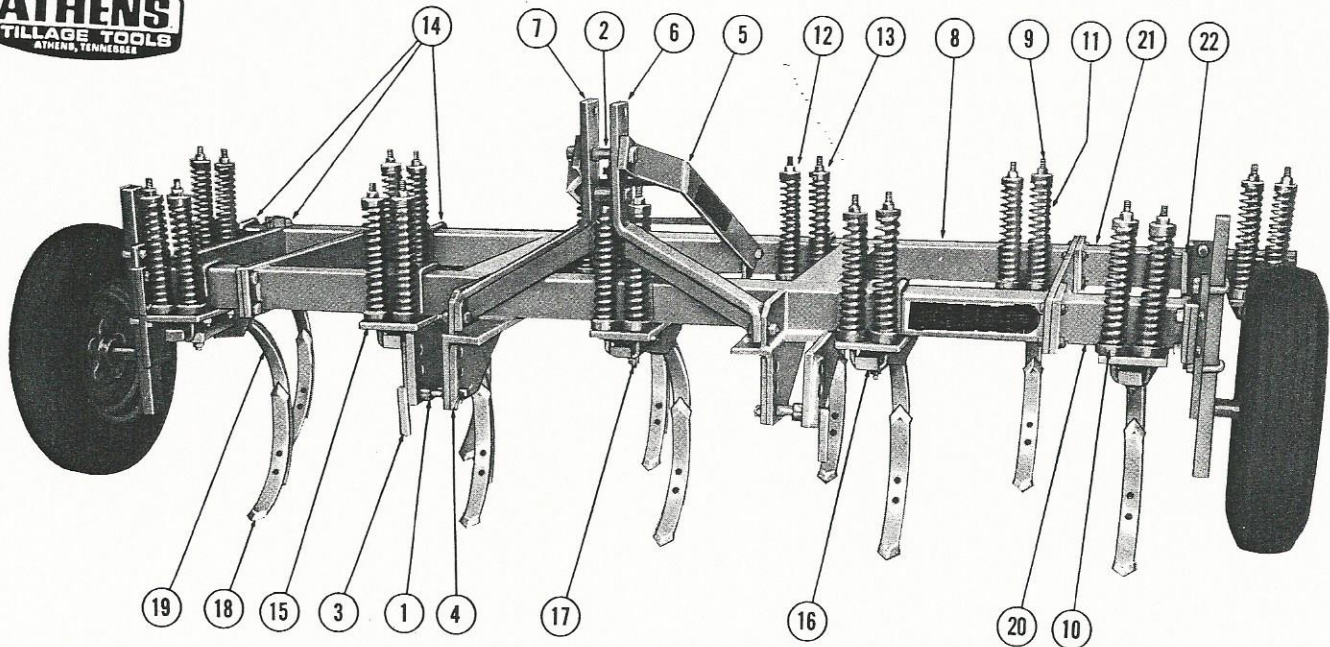


Figure 12

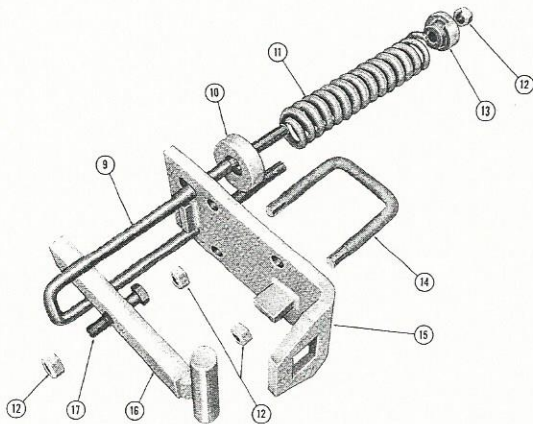
EXTENSION PARTS
(FOR THREE-BAR UNITS)

Item No.	Part No.	Quantity			Description
		Single	Double	Triple	
1	17519	2	2	1	Single Extension
2	80170	8	8	24	3/4" x 3 1/2" Bolt
	80870	8	8	24	3/4" Lock Nut
3	17524		2	1	Double Extension
4	18395		2		Double Extension Brace
5	80153		4	2	3/4" x 1 3/4" Bolt
	80870		4	2	3/4" Lock Nut
6	17499		2	2	U-Bolt
	80870		4	4	3/4" Lock Nut
7	18393			2	Triple Extension
8	18390			1	Triple Extension Brace



SEE FIGURE 18, PAGE 15 FOR 5' UNITS ONLY.
Figure 13

For units shipped after March 1976 (Serial Number D76100 and up), see Tine Attaching Parts on Addendum A, Page 14.



REPAIRS ONLY

Figure 14

PARTS LIST FOR TWO-BAR UNITS

Item No.	Part No.	Quantity		Description
		7-Ft.	11-Ft.	
1	17490	2	2	Lower Hitch Spacer
	17511	2	2	Quick-Hitch Bushing (Not Shown)
2	17491	2	2	Hitch Spacer
3	17492	2	2	Hitch Pin
4	12126	2	2	1/4" Quick-Hitch Pin
5	17493	1	1	Top Hitch Brace
	80159	2	2	3/4" x 2 1/4" Bolt
	80620	2	2	3/4" Nut
	81020	2	2	3/4" Lockwasher
	80210	1	1	1" x 4 1/2" Bolt
	80685	2	2	1" Nut
	80212	1	1	1" x 6" Bolt
	81040	2	2	1" Lockwasher
6	17494	1	1	Left Top Hitch
	80157	1	1	3/4" x 2 1/4" Bolt w/Nut
7	17495	1	1	Right Top Hitch
	80157	1	1	3/4" x 2 1/4" Bolt w/Nut
8	17479	1		Seven-Foot Frame Assembly
	17483		1	Eleven-Foot Frame Assembly
9	17500	7	11	Spring U-Bolt
10	17466	14	22	Spring Bottom Casting
11	17504	14	22	Shock-Absorbing Spring
12	80870	49	77	3/4" Lock Nut
13	17467	14	22	Spring Top Casting
14	17499	14	22	Tine Attaching U-Bolt
15	17505	7	11	Tine Attaching Assembly
16	17506	7	11	Tine Pivot Assembly
17	80167	7	11	3/4" x 3" Heat-Treated Bolt
18	17509	7	11	1/2 x 2 x 16 Chisel Point
	17510	7	11	5/8 x 2 x 16 Chisel Point
19	17507	7	11	26" Tine x 1"
	17508	7	11	32" Tine x 1"
	19156			32" Tine x 1 1/4"
	80450	14	22	7/16" x 2 1/4" No. 3 Plow Bolt w/Nut
	81160	7	11	7/16" Flat Washer

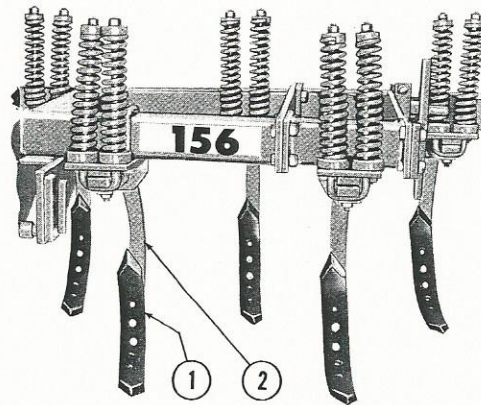


EXTENSIONS PARTS LIST FOR TWO-BAR UNITS

(Extra Equipment)

Item No.	Part No.	Quantity		Description
		7-Ft.	11-Ft.	
20	17519	2	2	Single Extension Assembly
	80155	8	8	3/4" x 2" Heat-Treated Bolt
	80870	8	8	3/4" Lock Nut
21	17524	2	2	Double Extension Assembly
	80155	8	8	3/4" x 2" Heat-Treated Bolt
	80870	8	8	3/4" Lock Nut
22	17523	2	2	Extension Brace Assembly
	80153	4	4	3/4" x 1 3/4" Bolt
	80870	4	4	3/4" Lock Nut

NOTE: Two of Item 14, Tine Attaching U-Bolt No. 17499, are also used with Extension Brace Assembly for Double Extension only. Items 9 through 19 are also used with extensions.



Item No.	Part No.	7'	10'	11'	SE	DE	TE	Description
1	18459	4	5	5	1	2	3	Right Twisted Shovel
	18460	3	5	6	1	2	3	Left Twisted Shovel
	80450	14	20	22	4	8	12	7/16" x 2 1/4" No. 3 Plow Bolt w/Nut
	80995	14	20	22	4	8	12	7/16" Lockwasher
	81160	7	10	11	2	4	6	7/16" Flat Washer

ASSEMBLY INSTRUCTIONS

1. To Install Twisted Shovels:

A. In pairs for high ridges:

Install the Twisted Shovels (1) at the ground end of the Chisel Tine (2) to make certain that the pairs work out evenly so that no two rights or two lefts are together.

Bolt securely to Tine.

B. For regular trash covering:

Start on one side and install all of either left or right Twisted Shovels (1) as shown above. Then, continue from center outward with remaining Shovels.

If all right Twisted Shovels are put on the left and the left Twisted Shovels on the right, a ridge will be built in the middle of Chisel Plow. If all right Twisted Shovels are put on right and left on left, a ridge will be built on either side.

2. To Adjust Ridge Height:

For normal use, bolt Shovels (1) to Tines (2) in pair of holes closest to ground-engaging end. For more scooping action and higher ridges in soft ground, Shovels can be lowered on Tine to center holes as shown.

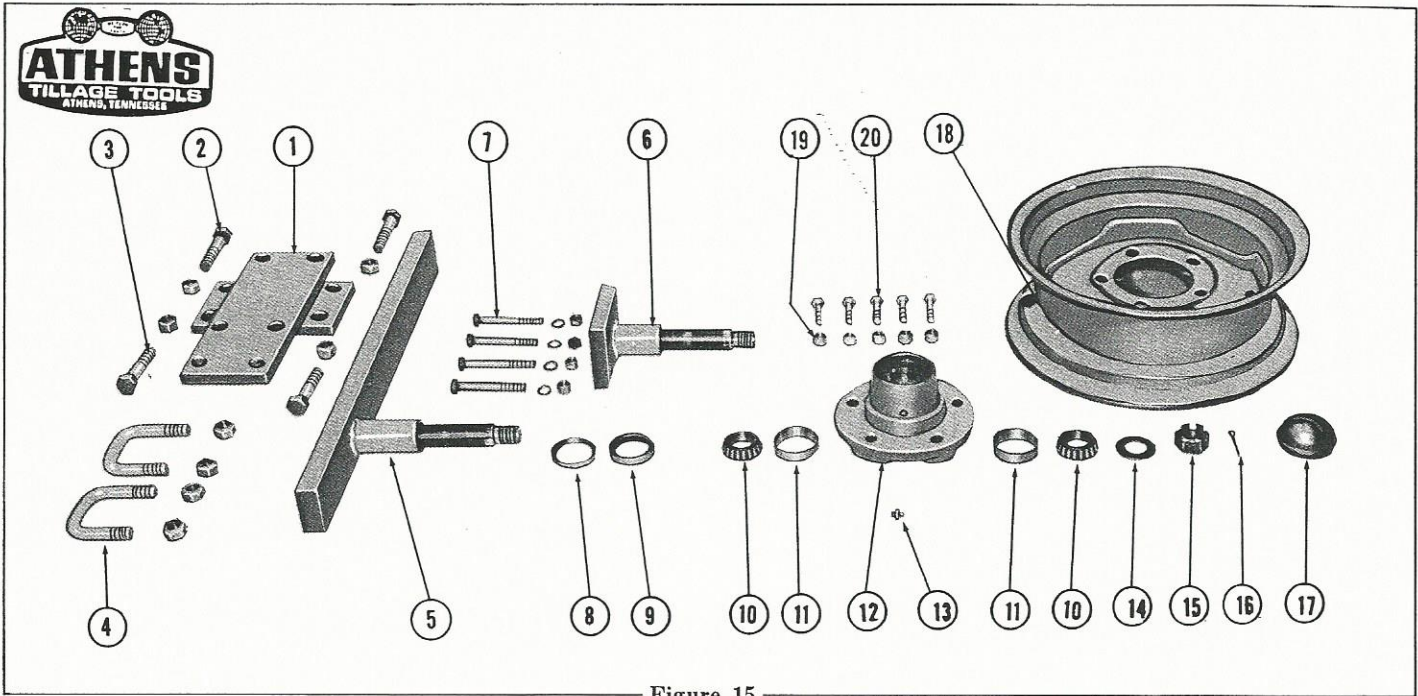


Figure 15

GAUGE WHEEL AND WHEEL HUB PARTS

Item No.	Part No.	Quantity		Description
		Lift Type	Pull Type	
1	17516	2		Gauge Wheel Attchg. Assy.
2	80155	4		3/4" x 2" Bolt (2-Bar)
3	80159	4		3/4" x 2 1/2" Bolt (2-Bar)
	80174	8		3/4" x 4" Bolt (3-Bar)
	80870	8		3/4" Lock Nut
4	17515	4		Gauge Wheel U-Bolt
	80870	8		3/4" Lock Nut
5	17517	2		**Gauge Wheel Std.
	19777	2		*Gauge Whl. Std., QUAD
6	17080		2	**Wheel Axle
	19384		2	*Wheel Axle, QUAD
7	80172	8		3/4" x 3 3/4" H.T. Bolt
	80620	8		3/4" Hex Nut
	80870	8		3/4" Lockwasher
8	12168	2	2	**Flinger
	19076	2	2	*Flinger, QUAD
9	17079	2	2	**Seal
	19153	2	2	*Tri-Ply Seal, QUAD
10	70049	2	2	*Outside Bearing Cone Timken LM67048, QUAD
	70049	4	4	**Insd. & Outsd. Brg. Cone Timken LM67048

Item No.	Part No.	Quantity		Description
		Lift Type	Pull Type	
11	70048	2	2	*Outside Bearing Cup Timken LM76010, QUAD
	70048	2	2	**Insd. & Outsd. Brg. Cup Timken LM67010
	70044	2	2	*Inside Bearing Cup Timken LM 48510, QUAD
	70045	2	2	*Inside Bearing Cone Timken LM 48548, QUAD
12	900074	2	2	**Whl. Hub w/Cups, Bolts
	900079	2	2	*Whl. Hub, Cps., Blts., QUAD
13	11610	2	2	1/2" NPT Grease Fittings
14	81230	2	2	1" SAE Flat Washer
15	80715	2	2	1" Hex Std. Nut w/NF Thrd.
16	81360	2	2	3/16" x 1 1/2" Cotter
17	13197	2	2	**Hub Cap
	19075	2	2	*Hub Cap, QUAD
18	15792	2	2	15 x 6, 5-Lug Wheel
19	15793	10	10	Wheel Bolt Nut
20	13198	10	10	Wheel Bolt

**Items marked with ** are non-current parts used through January 1978 with S/N A78999 and below.

*Items marked with * and showing QUAD in the description have been used since February 1978 with S/N B78001 or 088001 and above.



ADDENDUM A TO "156" OPERATOR'S MANUAL

(Effective with units shipped after March 1976, Serial Number D76100 and up)

To replace Paragraph 4, Page 4 in Operator's Manual.

4. TO ATTACH TINE TO TINE ATTACHING PLATE:

A. For Spring-type Tine Attaching Parts:
(Refer to Figure 13, Page 11 and Figure 16, Addendum)

Attach Tine (19) to Tine Pivot (16) at front with $\frac{3}{4}$ x $3\frac{3}{4}$ Heat-treated Bolt (17) and Lock Nut (12) loosely. Attach Tine to Tine Pivot at rear with Tine Clamp "U" Bolt (23) and Tine Clamps (24) with two $\frac{3}{4}$ Lock Nuts. NOTE: "U" Bolt must be mounted in groove that is forged into Tine Pivot Assembly at (16A). Tighten Bolt and "U" Bolt securely.

Tine Pivot (16) is attached to Tine Attaching Plate (15) with

two Tine Pivot "U" Bolts (25) and four $\frac{3}{4}$ Lock Nuts (12). CAUTION: Tighten until snug only. Do not tighten securely. Over-tightening can place excessive drag and load on Tine Pivot, prevent proper operation of Shock-Absorbing Springs and cause failure of Tine Pivots.

B. For Rigid-Type Tine Attaching Parts:
(Refer to Figure 10, Page 8 and Figure 17, Addendum)

Attach Tine (19) to Rigid Tine Attaching Assembly (2) at front with $\frac{3}{4}$ x $3\frac{3}{4}$ Heat-treated Bolt (3) and $\frac{3}{4}$ Lock Nut loosely. Attach at rear with Tine Clamp "U" Bolt (4) and two $\frac{3}{4}$ Lock Nuts. Tighten Bolt and "U" Bolt securely.

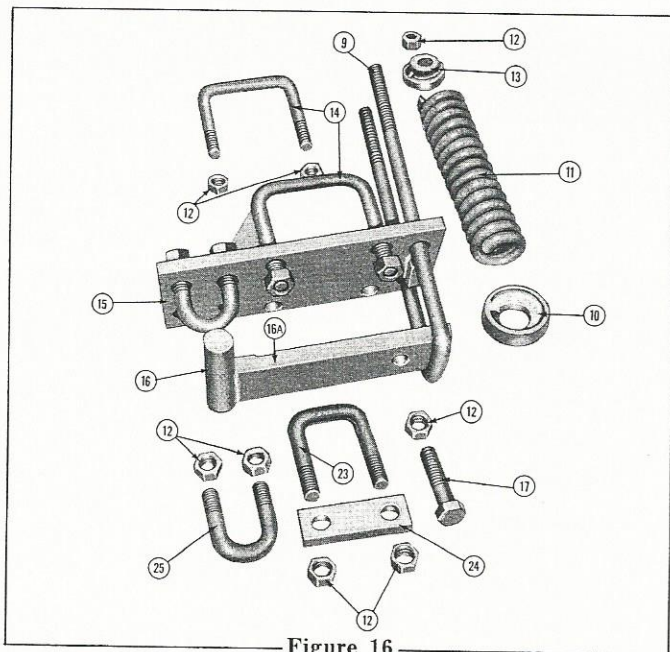
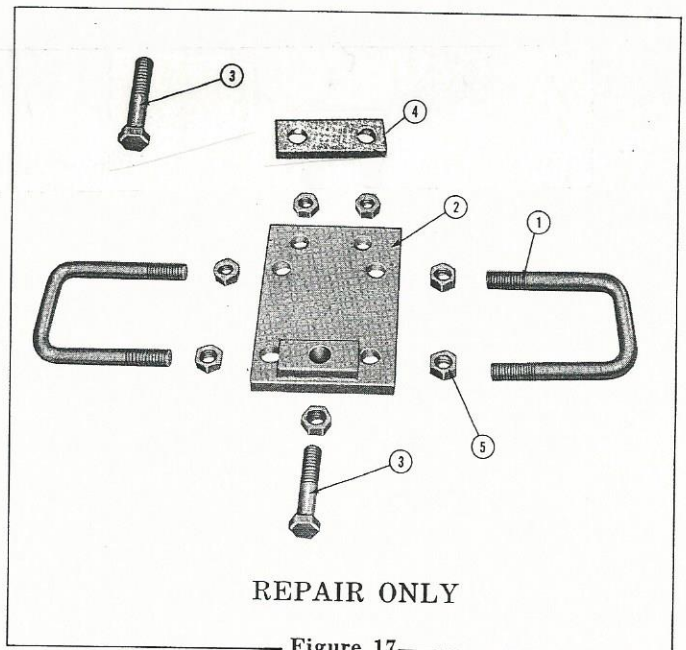


Figure 16



REPAIR ONLY

Figure 17

SPRING-TYPE TINE ATTACHING PARTS

Item Number	Part Number	Quantity Per Tine	Description
9	17500	1	Spring "U" Bolt
10	17466	2	Spring Bottom Casting
11	17504	2	Shock-absorbing Spring
12	80870	12	$\frac{3}{4}$ " Lock Nut
13	17467	2	Spring Top Casting
14	17499	2	Tine Attaching "U" Bolt
*15	19166	1	Tine Attaching Assembly
*16	19167	1	Tine Pivot Assembly
17	80169	1	$\frac{3}{4}$ " x $3\frac{3}{4}$ " H.T. Bolt
*23	19164	1	Tine Clamp "U" Bolt
*24	19160	1	Tine Clamp
*25	19163	2	Tine Pivot "U" Bolt

Items marked * in quantities shown can replace old-style parts #17505 and/or #17506.

RIGID-TYPE TINE ATTACHING PARTS

Item Number	Part Number	Quantity Per Tine	Description
1	17499	2	Tine Attaching "U" Bolt
2	19171	1	Rigid Tine Attaching Assembly
3	80169	1	$\frac{3}{4}$ " x $3\frac{3}{4}$ " H.T. Bolt
4	19170	1	Tine Clamp "U" Bolt
5	80870	7	$\frac{3}{4}$ " Lock Nut



ADDENDUM B TO PL92-156 CHISEL PLOW SETTING-UP DIRECTIONS FOR FIVE-FOOT MODELS ONLY

2. TO ATTACH THREE-POINT HITCH:

(Refer to Figure 5, Page 5 and Figure 18, Page 15 in Addendum B)

Follow same instructions as in 2B, Page 2 and instructions below:
Attach Cat. #1 Hitch Pins (1) inside of Lower Hitch Members as shown in Figure 17. Attach Cat. #2 Hitch Pins outside of Lower Hitch Members and tighten securely.

3. TO ATTACH TO TRACTOR:

B. Attach tractor lower Links to Hitch Pins (1) securely.

Attach tractor top Links to $\frac{13}{16}$ " hole in Top Hitch for Cat. #1 and in either $1\frac{1}{16}$ " hole for Cat. #2.

6. TO ATTACH EXTENSIONS:

(Refer to Figure 17, Page 14 in Addendum B)

B. On Five-Foot Chisel Plows Only:

Follow same instructions as in 6B 1 and 2 except that Single Extensions attach to rear of Frame (2) and Double Extensions attach to front of Frame.

NOTE: All other information is the same as for other two-bar units.

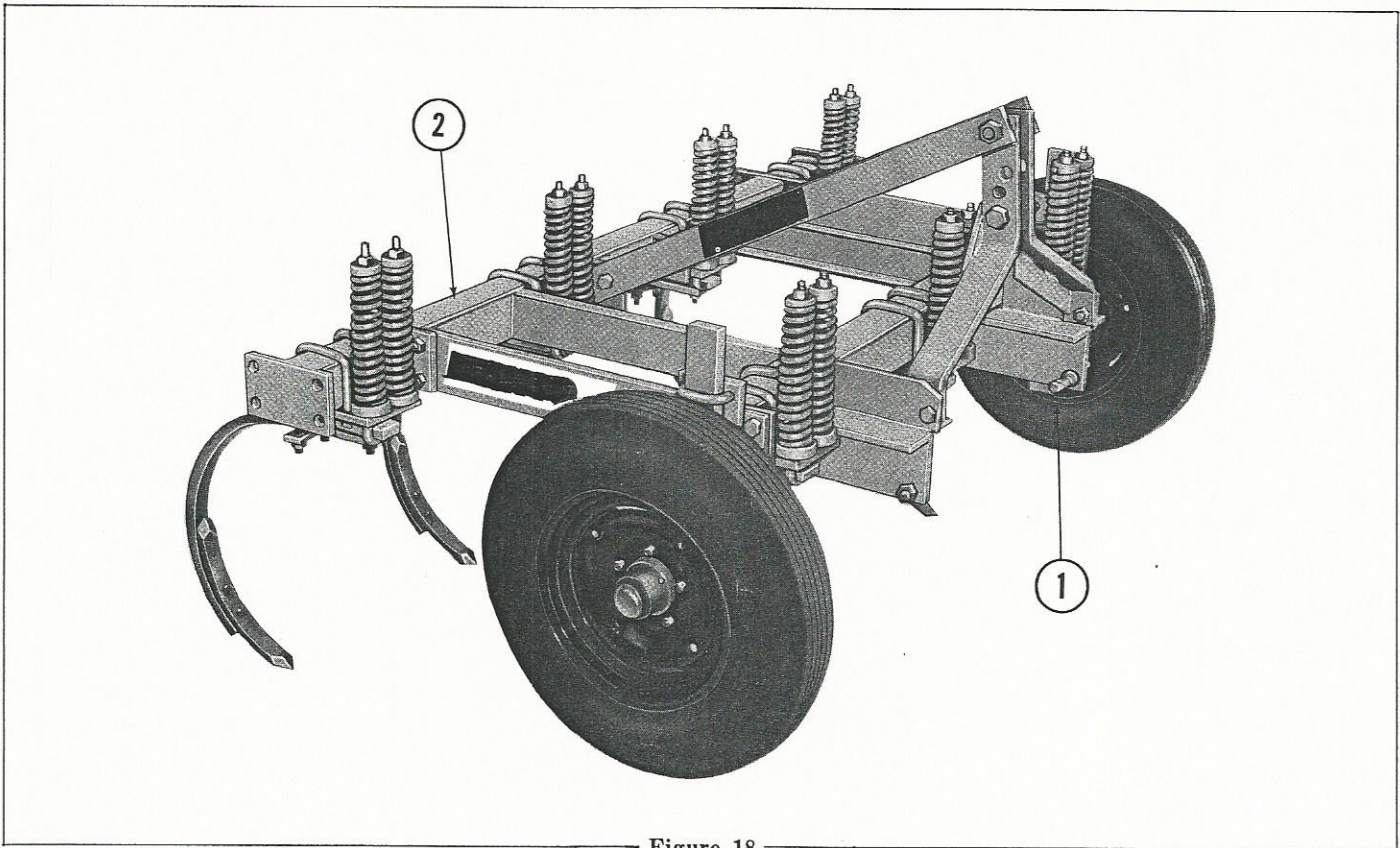


Figure 18

PARTS LIST FOR FIVE-FOOT TWO-BAR UNITS ONLY

Item No.	Part No.	Quantity	Description
1	11550	2	Cat. #1 Hitch Pin
	11467	2	Cat. #2 Hitch Pin
	80650	2	$\frac{7}{8}$ " Hex Nut w/Fine Threads
	81030	2	$\frac{7}{8}$ " Lock Washer
2	19271	1	Five-Foot Frame Assy.

Note: All other parts are the same as for other two-bar units.